

EXHIBIT D

**UNITED STATES DISTRICT COURT
DISTRICT OF MASSACHUSETTS**

SINGULAR COMPUTING LLC,

Plaintiff,

v.

GOOGLE LLC,

Defendant.

Civil Action No. 1:19-cv-12551-FDS

PLAINTIFF’S THIRD SET OF INTERROGATORIES [NOS. 12-20]

Under Rules 26 and 33 of the Federal Rules of Civil Procedure, Plaintiff, Singular Computing LLC (“Singular”), hereby submits these interrogatories to Defendant, Google LLC (“Google”).

Pursuant to Federal Rules of Civil Procedure 33(b)(2), Defendant must answer this interrogatory within 30 days. Pursuant to Federal Rule of Civil Procedure 33(b)(3), Defendant must answer each interrogatory separately and fully in writing and under oath, applying the Definitions and following the Instructions set forth below.

DEFINITIONS

1. All Definitions and rules of construction incorporate the obligations set forth in L.R. 26.

2. “Accused Products” means all accused products, computer systems, devices, and other hardware or software identified in Plaintiff’s Amended Complaint (Dkt. No. 37) and in Plaintiff’s Infringement Contentions, including without limitation at least:

- a. Google Cloud Tensor Processing Unit Version 2 (“TPU v2”), including software that runs workloads on TPU v2, including TensorFlow;

b. Google Cloud Tensor Processing Unit Version 3 (“TPU v3”), including software that runs workloads on TPU v3, including TensorFlow;

c. Larger compute systems that incorporate (a) or (b), such as TPU Pods.

3. “Asserted Patents” or “Patents-in-Suit” refers to U.S. Patent Nos. 8,407,273 (“273 Patent”); 9,218,156 (“156 Patent”); and 10,416,961 (“961 Patent”), as well as any other patent(s) that Plaintiff asserts in this action.

4. “Communication” means the transmittal or receipt of information (in the form of facts, ideas, inquiries, or otherwise) regardless of the medium used to transmit or receive the information.

5. “Plaintiff” or “Singular” means Singular Computing LLC, its employees, agents, attorneys, representatives, or any other persons who have acted or purported to act for their behalf.

6. “Google,” “You” “Defendant” or “Your” means Google, LLC, its employees, agents, attorneys, representatives, or any other persons who have acted or purported to act for its behalf. This includes Google LLC, its parents, subsidiaries, divisions, branches, predecessors, or successors-in-interest, and its agents, employees, officers, directors, and attorneys.

7. The term “identify” (with respect to persons) means to give, to the extent known, the person’s full name, present or last known address, and, when referring to a natural person, the present or last known place of employment.

8. The term “identify” (with respect to documents) means to state, to the extent known, the type of document, the document’s subject matter, the date of the document; and the document’s author(s), addressee(s), and recipient(s).

9. “Person” means any natural person or any business, legal, or governmental entity or association.

10. "Describe in detail" means to provide a complete description and explanation of the facts, circumstances, analysis, opinion and other information relating to the subject matter of the interrogatory.

11. “State the basis for” a claim, assertion, allegation, or contention means to:

- a. identify each and every document (and, where pertinent, the section, article, or subsection thereof), which forms any part of the source of the information regarding the alleged facts or legal conclusions referred to by the interrogatory;
- b. identify each and every communication which forms any part of the source of the information regarding the alleged facts or legal conclusions referred to by the interrogatory;
- c. state separately the acts or omissions on the part of any person (identifying the acts or omissions by stating their nature, time, and place and identifying the persons involved) which form any part of the information regarding the alleged facts or legal conclusions referred to in the interrogatory; and
- d. state separately any other fact which forms the basis of the information regarding the alleged facts or conclusions referred to in the interrogatory.

12. All other words and phrases are to be given their ordinary meaning consistent with the Federal Rules of Civil Procedure and shall not be unduly or restrictively construed so as to avoid responding to the full scope of the interrogatory.

INSTRUCTIONS

1. If you object to any interrogatory or portion thereof, you shall specify the grounds for your objection and each portion of the interrogatory to which the objection applies. Subject to your objection(s), you shall answer each interrogatory fully, in writing, and under oath.

2. You shall diligently obtain all information needed for a complete response to each interrogatory. If you are unable to provide a complete answer to any interrogatory, you shall nevertheless identify the information you were unable to obtain; the efforts you made to obtain the information; and the reason(s) you were unable to obtain the information.

3. If you find that an interrogatory uses one or more terms ambiguously so as to preclude an unambiguous response, you shall identify each such term and the meaning you have assumed.

4. If you refuse to answer part or all of an interrogatory on grounds of attorney-client, work product, or any other privilege(s), you shall state the basis of each claim of privilege, and answer each interrogatory to the extent you are not asserting privilege.

5. If you disagree with any Definition used for these interrogatories, you shall state the basis for your disagreement and identify any alternate definition(s) you used in preparing your response.

6. These interrogatories are continuing in nature. If you learn of any additional or corrected information, facts, or documents in the course of this litigation, you shall timely disclose such information, facts, and documents pursuant to Fed. R. Civ. P. 26(e).

INTERROGATORIES

12. Identify and describe the layout, physical structure, and contents of each of the data centers referenced in Paragraph 26 of Google LLC's Amended Answer and Affirmative Defenses to Plaintiff Singular Computing LLC's Amended Complaint (ECF No. 57). If there are additional Google data centers that make use of any of the Accused Products and that are not referenced in the above documents, identify and describe the layout, physical structure, and contents of these data centers as well. Your answer should include an identification of all relevant documents, and the identity of the person(s) most knowledgeable.
13. Identify the cost to design, build, and operate each of the data centers referenced in Paragraph 26 of Google LLC's Amended Answer and Affirmative Defenses to Plaintiff Singular Computing LLC's Amended Complaint (ECF No. 57), and any other data centers that contain or utilize any of the Accused Products. Your answer should include an identification of all relevant documents, and the identity of the person(s) most knowledgeable.
14. Identify and describe the amount of any costs or expenses incurred or investments made by You in producing, creating, developing, or otherwise commercializing the Accused Products, and identify and describe any anticipated or actual return on these investments or expenditures in terms of market share, sales, brand recognition, revenues, profits, customers, or other business objectives, including any projections or forecasts of the same.
15. Identify every product, service, system, and method of or from a third party, including the identity of each said third party, that You have used in any way in connection with the design, development, implementation, testing, management, and operation of the Accused Products.
16. Identify any products or processes that You contend are acceptable non-infringing alternatives to the Accused Products, describing specifically:
- a. The nature of each alleged non-infringing alternative;
 - b. Which claim elements You contend are absent from each alleged non-infringing alternative and Your reasons and bases for contending such claim elements are absent;
 - c. The reasons and bases for Your contention that each alleged non-infringing alternative was an acceptable non-infringing alternative;
 - d. The date you contend the alleged non-infringing alternative was available to you and the reasons and bases for your contentions;
 - e. The time you contend would be associated with the development of the alleged non-infringing alternative and the reasons and bases for your contention;
 - f. The cost you contend would be associated with implementing the alleged non-infringing alternative and the reasons and bases for your contention;
 - g. The identify of any product, service, or other commercially available application, whether made by you or any other party, than contains the alleged non-infringing alternative; and

h. The reasons you did not incorporate or implement the alleged non-infringing alternative.

17. Identify any competing products, services, applications, or tools that You believe provide or enable functionalities similar to those identified in Plaintiff's Infringement Contentions, including but not limited to the ability to perform training and/or inference on neural models.

18. Describe the identity, content, and interpretation of all licenses, technology agreements, authorizations to use, or other such transfer of rights agreements, including but not limited to patent and/or software licenses:

- a. That you have produced or identified in this case;
- b. That pertain to technology similar (in part or in full) to the Patents-in-suit; or
- c. That you contend are comparable to a license that you would have taken in a hypothetical negotiation in this Case.

To guide you in your response, your answer should disclose, for each such license, at least the following information: (i) the names of all parties; (ii) the royalty rate; (iii) the royalty base; (iv) the term; (v) all license fees (e.g. technology access fees); (vi) the technology at issue; (vii) the patent numbers for each patent covered by the license; (viii) the total amount of money paid under the license; (ix) whether the license was paid as a lump-sum or as a running royalty; (x) whether it was assumed that the patents were infringed and valid; and (xi) whether there were cross-licenses for any patents and, if so, how each cross-license impacted items (ii), (iii), (v), (viii). Your description must also include all grounds for your contention that the license is comparable to what the parties would have agreed to in the hypothetical negotiation in this case.

19. Identify and describe any analysis or calculations of financial benefits of any kind, (including gross and net revenue and profits, return on investment, cost savings, customer retention and/or any other benefits) conducted by or for You, relating to implementing each of the functionalities identified in Plaintiff's Infringement Contentions, including but not limited to: (i) the use of the BF16 number format within the TPU; (ii) the use of the MXU for matrix multiplication within the MXU; (iii) the use of the Core Sequencer within the TPU; (vi) the use of the VPU within the TPU. Your answer should disclose, in particular, any analysis or calculations of financial benefits of any kind that relate to comparisons between the use of the BF16 number format and the use of alternative number formats, including but not limited to FP32 and int8. Your answer should further disclose any analysis or calculations of financial benefits of any kind that relate to comparisons between the use of the Accused Products for training and/or inference and (i) the use of the Google TPU v1 for training and/or inference; and (ii) the use of other products for training and/or inference, including but not limited to CPUs and GPUs. Further, identify every person who participated in or conducted such analysis identified above.

20. Identify and describe any surveys or other customer analyses, prepared by You that identify or sought to identify customer preference information, desired features, or any other information related to the functionalities identified in Plaintiff's Infringement Contentions, including but not limited to: (i) the use of the BF16 number format within the TPU; (ii) the use of the MXU for matrix multiplication within the MXU; (iii) the use of the Core Sequencer within the TPU; (vi) the use of the VPU within the TPU. Your answer should disclose, in particular, any surveys or other customer analyses, prepared by You that identify or sought to identify customer preference

information, desired features, or any other information that relate to comparisons between the use of the BF16 number format and the use of alternative number formats, including but not limited to FP32 and int8. Your answer should further disclose any surveys or other customer analyses, prepared by You that identify or sought to identify customer preference information, desired features, or any other information that relate to comparisons between the use of the Accused Products for training and/or inference and (i) the use of the Google TPU v1 for training and/or inference; and (ii) the use of other products for training and/or inference, including but not limited to CPUs and GPUs. Further, identify every person who participated in or conducted such analysis identified above.

Dated: April 7, 2021

/s/ Paul J. Hayes

Paul J. Hayes (BBO #227000)

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ATTORNEYS FOR THE PLAINTIFF

CERTIFICATE OF SERVICE

I certify that on April 7, 2021, I served this document on Defendant by causing a copy to be sent via electronic mail to its counsel of record.

/s/ Daniel McGonagle